

REMARKS

In the non-final Office Action, the Examiner objects to the drawings; rejects claims 1-27 under 35 U.S.C. § 101 stating that the claimed invention is drawn to non-statutory subject matter; rejects claims 28-55 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement; and rejects claims 28-55 under 35 U.S.C. § 103(a) as being unpatentable over non-patent literature entitled "Network Simulations with OPNET".

By way of this Amendment, claims 28-36 have been canceled without prejudice or disclaimer and claim 37 has been amended to improve form. Reconsideration and timely allowance of claims 37-55 in view of the preceding Amendments and the following remarks are respectfully requested.¹

Drawing Objection

The Office Action objects to the drawings for allegedly failing to disclose every feature of the claimed invention. (Office Action – pp. 2-3). More specifically, the Examiner alleges that claimed features relating to the "demand input structure", "model generator", "optimization processor," and "updating means" are not disclosed in the drawings. (Office Action – pg. 3).

¹ As Applicants' remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicants' silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, etc.) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to analyze and dispute such assertions/requirements in the future.

As an initial matter, Applicants respectfully reiterate that claims 28-36 have been canceled from the present application by way of the present Amendment. Accordingly, claim features relating to “model generator”, “optimization processor,” and “updating means” are no longer pending in the present application. Withdrawal of the objection to the drawings for allegedly failing to show these features is therefore respectfully requested.

With respect to the feature “demand input structure”, as initially presented in independent claim 37, Applicants respectfully submit that at least one embodiment of this feature is fully disclosed in Figures 8A-8C of the present application. In support of this assertion, the Examiner's attention is directed to page 14, lines 25-27 of the present application, which recites “[u]pon beginning the optimization process (step 902), demand sets are sorted by their time points (step 904) such that one or more suitable demand input structures (e.g., structures 300A-300C described above) are available as input information to the network modeling process.” Structures 300A-300C are illustrated in Figures 8A-8C, respectively.

For at least these reasons, the objection to the drawings for allegedly failing to show this feature is respectfully requested.

Rejections Under 35 U.S.C. § 101

The Office Action rejects claims 37-55 under 35 U.S.C. § 101 for allegedly being drawn to non-statutory subject matter. More specifically, the Examiner indicates that independent claim 37 does not appear to recite a concrete and tangible result. (Office Action – pg. 3). Applicants respectfully traverse.

Although not acquiescing to the merits of the rejection, but to expedite prosecution of the application, claim 37 has been amended to recite “outputting a network equipment deploying solution based on the updated network model and the cost function associated therewith when all time points have been processed.” The outputting of a solution clearly establishes a concrete and tangible result.

In view of the foregoing remarks, Applicants respectfully request withdrawal of the pending rejection under 35 U.S.C. § 101.

Rejections Under 35 U.S.C. § 112

The Office Action rejects claims 37-55 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. More specifically, the Examiner indicates that the claims allegedly contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants respectfully traverse this rejection.

Although exactly which elements of claim 37 are alleged to lack an enabling disclosure in the specification is not clear from the body of the rejection, Applicants respectfully submit that each and every element of claim 37 and its dependent claims 38-55 are fully supported by the specification. The following description of each allegedly non-enabled element and its disclosure in the specification is provided for information purposes and should not be interpreted in any limiting manner.

As described above, with respect to the pending drawing objection, a “demand input structure” is described, for example, at page 14, lines 25-27 of the present

application, which recites “[u]pon beginning the optimization process (step 902), demand sets are sorted by their time points (step 904) such that one or more suitable demand input structures (e.g., structures 300A-300C described above) are available as input information to the network modeling process.” “Sorting said plurality of demands” is also described, for example, at page 14, lines 24-27 of the present application, which recites that demand sets are sorted by their time points in step 904 of Fig. 9.

“Transforming said network into a network model” is described, for example, at page 22, lines 10-12 of the present application, which recites “Essentially, the cumulative process blocks XX embraces the following components as a model generator and optimization processor: (I) Transforming of the ring arrangement of a network into a multi-nodal directed graph)...” “Updating said network model and said cost function...” is described, for example, at page 26, lines 15-21, where it is disclosed that the network model and the cost function are recursively updated to encompass the time-dependency and/or the multiple MUX levels of demand quantities.

Based on the foregoing remarks, it is clear that the present specifically fully enables one skilled in the art to make and/or use the invention of claims 37-55. Reconsideration and withdrawal of the rejection of claims 37-55 under 35 U.S.C. § 112, first paragraph, are respectfully requested.

Rejections Under 35 U.S.C. § 103(a)

The Office Action rejects claims 37-55 under 35 U.S.C. § 103(a) as allegedly being unpatentable over non-patent literature entitled “Network Simulations with

OPNET” (hereinafter “the OPNET reference”). Applicants respectfully traverse this rejection.

Independent claim 37 is directed to a planning method for optimally deploying network equipment in a network over a period of time, said network including a span disposed between at least two sites. The method includes providing a demand input structure having a plurality of demands to be serviced by said network, each of the demands being associated with a corresponding time point and a demand quantity indicating units of communication capacity; sorting said plurality of demands by their time points; starting with a set of the demands having an earliest time point; transforming said network into a network model including a multi-nodal directed graph having a plurality of arcs, said transforming being based on a topology of said network; optimizing the routing of said set of demands using said multi-nodal directed graph and a cost function associated therewith; obtaining network equipment placement information and demand routing information based on said optimizing of the routing of said set of demands; updating said network model and said cost function associated therewith based on said network equipment placement information and said demand routing information; repeating said optimizing, said obtaining, and said updating for remaining time points provided in said demand input structure, using said updated network model and cost function to optimize the routing of the remaining demands associated with said time points; and outputting a network equipment deploying solution based on the updated network model and the cost function associated therewith when all time points have been processed. The OPNET reference does not disclose or reasonably suggest the combination of features recited in claim 37.

For example, the OPNET reference does not disclose or suggest providing a demand input structure having a plurality of demands to be serviced by said network, each of the demands being associated with a corresponding time point and a demand quantity indicating units of communication capacity, as recited in claim 37. In the rejection, the Office Action cites section 2.2.1 of the OPNET reference for allegedly disclosing “the functionality of a demand input structure by allowing the simulation of time-based network behavioral characteristics and program the ability to sort demand by time points and transform network models.” (Office Action – pg. 9). Applicants respectfully disagree with the Examiner's interpretation of the OPNET reference.

Section 2.2.1 of the OPNET reference discloses a simulation editor capable of executing a network model. Further, this section of the OPNET reference discloses that simulation execution is the final step in an iteration of the modeling experiment. This section of the OPNET reference, or the entirety of the OPNET reference, does not disclose or even remotely suggest providing a demand input structure having a plurality of demands to be serviced by said network, each of the demands being associated with a corresponding time point and a demand quantity indicating units of communication capacity, as recited in claim 37. In fact, the simulation environment of the OPNET reference does not appear to be based on demand whatsoever.

For at least this reason, claim 37 is patentable over the OPNET reference. Reconsideration and allowance of claim 37 are therefore respectfully requested.

In addition, the OPNET reference also does not disclose or suggest updating the network model and the cost function associated therewith based on the network equipment placement information and the demand routing information; and repeating the

optimizing, obtaining, and updating for the remaining time points provided in the demand input structure, using the updated network model and cost function to optimize the routing of the remaining demands associated with the time points, as recited in claim 37. The Office Action cites section 2.1.1 and 2.2.1 (pg. 309) of the OPNET reference for allegedly disclosing the generation of a network model and the simulation of model performance. (Office Action – pg. 9). Applicants respectfully traverse. More particularly, Applicants respectfully submit that the Examiner has not addressed each and every feature of claim 37. In particular, the Office Action is completely silent with respect to repeating the optimizing, obtaining, and updating for the remaining time points provided in the demand input structure, using the updated network model and cost function to optimize the routing of the remaining demands associated with the time points.

Section 2.1.1 of the OPNET reference discloses that a network editor may be provided for enabling users to specify a physical topology of a network. The model created in the model editor may be executed in a simulation, configured by a simulation editor, as disclosed in section 2.2.1 of the OPNET reference. These sections of the OPNET reference do not disclose or even remotely suggest repeating the optimizing, obtaining, and updating for the remaining time points provided in the demand input structure, and using the updated network model and cost function to optimize the routing of the remaining demands associated with the time points, as recited in claim 37.

For at least these additional reason, claim 37 is patentable over the OPNET reference. Reconsideration and allowance of claim 37 are therefore respectfully requested.

Claims 38-55 depend from claim 37 and are therefore allowable over claim 37 for at least the reasons set forth above with respect to claim 37.² Reconsideration and allowance of claim 38-55 are therefore respectfully requested.

Conclusion

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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² As Applicants' remarks with respect to the base independent claims are sufficient to overcome the Examiner's rejections of all claims dependent therefrom, Applicants' silence as to the Examiner's assertions with respect to dependent claims is not a concession by Applicants to the Examiner's assertions as to these claims, and Applicants reserve the right to analyze and dispute such assertions in the future.